

14 March 2001

MODIS sensor Working Group (MsWG) Summary

Attendance: Bruce Guenther, Jack Xiong, Gary Toller, Mike Roberto, Steve Platnik, Bill Barnes, Bob Evans, Ed Zalewski, Dan LaPorte, Eddie Kearns, Chris Moeller, Roger Drake, Zhengming Wan, Jim Young, Gwyn Fireman

Scheduled Items

Data Reprocessing Requests

Intended to meet the needs of the Oceans Discipline's Level 2 product tuning but may accommodate requests from other disciplines if ocean products are not affected.

Changes to be made for this reprocessing (Version 2.5.5):

- Improved correction for crosstalk from band 31 into bands 32 – 36, but without NAD-closed data.
- Will implement IR RVS update (L1B product for April 2000 in DAAC missing two RVS corrections [code blunders] and improved RVS from closed-nadir aperture door observations); Level 2 tuning coefficients from Miami for these data are based on code where above items have been installed.
- SWIR band thermal leak correction will be turned on for this reprocessing. As Ocean products don't use SWIR bands, this approach will allow for some marginal improvement in SWIR L1B values, but at no impact to the Oceans L2 products.

Changes NOT made for this reprocessing:

- Improved Solar Diffuser degradation desirable, but not required.

Actions on MCST:

- Make sure the DAAC uses the same PGE and LUT versions as Miami for this reprocessing.
- Derive the improved Solar Diffuser degradation correction ASAP, in order to reprocess August 2000 data.
- Reprocess a couple of granules identified by the Atmosphere Discipline for their "Golden Day", 19 April 2000, using the SWIR band thermal leak correction.

SAFARI

Both Atmosphere and Ocean Disciplines will need to have reprocessing to coincide with their most intensive field campaigns: August 19 to mid-September 2000.

Discussion of Degradation Manuscript Draft

All parties agreed that the analysis supports the conclusions, and that the draft is going in the right direction.

Points clarified:

- Lunar results are averaged over the Moon.

- Lunar results follow the same pattern of degradation as solar diffuser and SDSM results, but we do not get the same degradation values with the moon as we get now with the SD/SDSM.
- There was no data from day 295 – 325, so no change was assumed.
- Only the first subframe was analyzed for bands 1 – 7.
- Degradation curves are ratios, so most systematic errors cancel.

[Action on MCST](#): Provide table of non-systematic errors.

Candidates for origin of differential mirror side degradation:

- Thin-film deposition (probably carbon), becoming solarized
- Happened during heated-door test? Roger says no, mirror was rotating and examined with high-intensity light afterwards.
- Could have happened anytime between launch pad and when the scan mirror was turned on, from contaminants internal to the instrument.
- The National Physical Laboratory's (NPL) witness-sample reflectance measurements shows an initial MS difference. Could there be something about this difference that allowed a different degradation?

Suggestions were made to look at other paddle-mirror instruments. VIRS/TRMM only goes down to 600 nm, and MISR has a band equivalent to MODIS Band 8, but does not have a scan mirror.

Around the Table

SBRS has been looking into LWIR bias sweeps; Jack verified that there were none at the currently operational ITWK setting. PV bands and PC band 34 are likely affected by charge sharing; as a noisy detector moves along the bias curve, it steals charge from an adjacent detector which then exhibits decreased response. SBRS will forward a memo requesting a limited bias sweep, and are also looking at other environmental effects. SBRS also observes anomalies in ecal ramps for affected channels. PV LWIR bands 27, 28, and 30 were out-of-family before ecals started. For PC ecals, Band 33 channel 10 is OOF; SBRS will request more ecal sweeps. Since these sweeps invalidate the PV LWIR data for the period of the ecal sweep, Guenther requested a memo from SBRS describing their rationale for these measurements as a basis of deciding when such measurements might be made.

Zhengming Wan noted that band 31 has brightness temperature 0.3 degrees higher than for band 32 at one scan angle; this is generally consistent with differences being reported from U. Miami studies. He has obtained MODIS data corresponding to the February 27 Lake Tahoe balloon validation test for analysis.

Wisconsin examined granule 2000343.0355; the scene contains both clear ocean and thick clouds. DN_SV shows no striping and no relation to DN_EV. DN_EV shows significant B26 striping on thick clouds, but no apparent striping at low signal levels. They believe that striping is likely related to detector non-linearity. MCST reports that striping is not a function of bias setting.

[Action on MCST](#): Analyze new SWIR test to characterize striping.

Bruce Guenther announced that he will be leaving government service on 7 April 2001. He will be joining Lockheed-Martin to work on their NPOESS Project contract. His work will be in the area of Calibration and Validation Activity. He will try to participate in some selected MCST activities, such as lunching with Jack and sitting in on MsWG meetings. Bruce expresses appreciation for everyone's support and goodwill.

compiled by G. Fireman, 16 March, 2001